In [ ]:
```python
# Assignment-5 Lists in Python
```

In [1]:
```python
# 1. Write a Python program to find the sum of all elements in the list [10, 20, 30
# 40, 50].
numbers = [10, 20, 30, 40, 50]
i = 0
total = 0
while i < len(numbers):
    total += numbers[i]
    i += 1
print(f"\nSum of all elements in the list: {total}")
```

Sum of all elements in the list: 150

In [2]:
```python
# 2. Write a Python program to display the odd and even elements from the list [10,
# 23, 11, 12, 33, 44, 2, 5, 6].

numbers = [10, 23, 11, 12, 33, 44, 2, 5, 6]
i = 0
print("Even numbers in the list:")
while i < len(numbers):
    if numbers[i] % 2 == 0:
        print(numbers[i], end=" ")
    i += 1
i = 0
print("\n\nOdd numbers in the list:")
while i < len(numbers):
    if numbers[i] % 2 != 0:
        print(numbers[i], end=" ")
    i += 1
```

Even numbers in the list:
10 12 44 2 6

Odd numbers in the list:
23 11 33 5

In [3]:
```python
# 3. Write a Python program to count the odd and even numbers in the list [10, 23,
# 11, 12, 33, 44, 2, 5, 6].

numbers = [10, 23, 11, 12, 33, 44, 2, 5, 6]
i = 0
odd_count = 0
even_count = 0
while i < len(numbers):
    if numbers[i] % 2 == 0:
        even_count += 1
    else:
        odd_count += 1
    i += 1
print(f"\nTotal Even numbers: {even_count}")
print(f"Total Odd numbers: {odd_count}")
```

Total Even numbers: 5
Total Odd numbers: 4

In [4]:
```python
# 4. Write a Python program to interchange the first and last elements in the list
# 23, 11, 12, 33, 44, 2, 5, 6].

numbers = [10, 23, 11, 12, 33, 44, 2, 5, 6]
print("Original list:", numbers)
temp = numbers[0]
numbers[0] = numbers[-1]
numbers[-1] = temp
print("List after swapping first and last elements:", numbers)
```

```
Original list: [10, 23, 11, 12, 33, 44, 2, 5, 6]
List after swapping first and last elements: [6, 23, 11, 12, 33, 44, 2, 5, 10]
```

In [6]:
```python
# 5. Write a Python program to duplicate all the items in the list li = [1, 2, 3],
# such that the result is:
# output = [1, 2, 3, 1, 2, 3, 1, 2, 3].
li = [1, 2, 3]
repeat = 3
i = 0
output = []
while i < repeat:
    output.extend(li)
    i += 1
print("Duplicated list:", output)
```

```
Duplicated list: [1, 2, 3, 1, 2, 3, 1, 2, 3]
```

In [8]:
```python
# 6. Find the smallest element in the list [10, 23, 11, 12, 33, 44, 2, 5,
# 6].

numbers = [10, 23, 11, 12, 33, 44, 2, 5, 6]
i = 1
smallest = numbers[0]
while i < len(numbers):
    if numbers[i] < smallest:
        smallest = numbers[i]
    i += 1
print(f"\nThe smallest element in the list is: {smallest}")
```

```
The smallest element in the list is: 2
```

In [10]:
```python
# 7. Find the greatest element in the list [89, 23, 24, 2, 55, 54, 64].

numbers = [89, 23, 24, 2, 55, 54, 64]
i = 1
greatest = numbers[0]
while i < len(numbers):
    if numbers[i] > greatest:
        greatest = numbers[i]
    i += 1
print(f"\nThe greatest element in the list is: {greatest}")
```

```
The greatest element in the list is: 89
```

In [11]:
```python
# 8. Find the repetitive elements in the list [1,2,3,4,56,1,22,23,33,23, 56].

numbers = [1, 2, 3, 4, 56, 1, 22, 23, 33, 23, 56]
```

```
    i = 0
    duplicates = []
    while i < len(numbers):
        count = numbers.count(numbers[i])
        if count > 1 and numbers[i] not in duplicates:
            duplicates.append(numbers[i])
        i += 1
    print(f"\nRepetitive elements in the list: {duplicates}")
```

Repetitive elements in the list: [1, 56, 23]

In [12]:
```
# 9. Remove all the odd elements from the list [10, 23, 11,12,33,44,2,5, 6].

numbers = [10, 23, 11, 12, 33, 44, 2, 5, 6]
i = 0
while i < len(numbers):
    if numbers[i] % 2 != 0:
        del numbers[i]
    else:
        i += 1
print(f"\nList after removing odd elements: {numbers}")
```

List after removing odd elements: [10, 12, 44, 2, 6]

In [13]:
```
# 10.Find all non-repetitive elements in the list[1,2,3,4,56,1,22,23,33,23,56].
numbers = [1, 2, 3, 4, 56, 1, 22, 23, 33, 23, 56]
i = 0
unique = []
while i < len(numbers):
    if numbers.count(numbers[i]) == 1:
        unique.append(numbers[i])
    i += 1
print(f"\nNon-repetitive elements in the list: {unique}")
```

Non-repetitive elements in the list: [2, 3, 4, 22, 33]

In [15]:
```
# 11.Write a Python program to duplicate all items in the list l = [1, 2, 3] to
# produce the result:
# result = [1, 2, 3, 1, 2, 3, 1, 2, 3].
l = [1, 2, 3]
result = l * 3
print(result)
```

[1, 2, 3, 1, 2, 3, 1, 2, 3]

In [17]:
```
# 12.Find the second greatest element in the list [89, 23, 24, 2, 55, 54, 64].
# Original list
numbers = [89, 23, 24, 2, 55, 54, 64]
sorted_list = sorted(numbers, reverse=True)
second_greatest = sorted_list[1]
print("Second greatest (sorted):", second_greatest)
first = second = float('-inf')
for num in numbers:
    if num > first:
        second = first
        first = num
    elif first > num > second:
```

```
        second = num
print("Second greatest (loop):", second)
```

```
Second greatest (sorted): 64
Second greatest (loop): 64
```

In [18]:
```python
# 13.Reverse the list [1, 2, 3, 4, 56, 1, 22, 23, 33, 23, 56].
# Original list
l = [1, 2, 3, 4, 56, 1, 22, 23, 33, 23, 56]

# Method 1: Using slicing
reversed_list = l[::-1]
print("Reversed using slicing:", reversed_list)

# Method 2: Using the reverse() method (in-place)
l_copy = l.copy()
l_copy.reverse()
print("Reversed using reverse():", l_copy)

# Method 3: Using reversed() function
reversed_func = list(reversed(l))
print("Reversed using reversed():", reversed_func)
```

```
Reversed using slicing: [56, 23, 33, 23, 22, 1, 56, 4, 3, 2, 1]
Reversed using reverse(): [56, 23, 33, 23, 22, 1, 56, 4, 3, 2, 1]
Reversed using reversed(): [56, 23, 33, 23, 22, 1, 56, 4, 3, 2, 1]
```

In [19]:
```python
# 14.Arrange the list [1, 2, 3, 4, 56, 1, 22, 23, 33, 23, 56] in
# ascending order.
# Original list
l = [1, 2, 3, 4, 56, 1, 22, 23, 33, 23, 56]

# Method 1: Using sorted() to return a new sorted list
ascending_sorted = sorted(l)
print("Sorted using sorted():", ascending_sorted)

# Method 2: Using sort() to sort the list in-place
l_copy = l.copy()
l_copy.sort()
print("Sorted using sort():", l_copy)
```

```
Sorted using sorted(): [1, 1, 2, 3, 4, 22, 23, 23, 33, 56, 56]
Sorted using sort(): [1, 1, 2, 3, 4, 22, 23, 23, 33, 56, 56]
```

In [20]:
```python
# 15.Arrange the list [1, 2, 3, 4, 56, 1, 22, 23, 33, 23, 56] in
# descending order.
# Original list
l = [1, 2, 3, 4, 56, 1, 22, 23, 33, 23, 56]

# Method 1: Using sorted() with reverse=True
descending_sorted = sorted(l, reverse=True)
print("Sorted using sorted():", descending_sorted)

# Method 2: Using sort() method (in-place)
l_copy = l.copy()
l_copy.sort(reverse=True)
print("Sorted using sort():", l_copy)
```

```
Sorted using sorted(): [56, 56, 33, 23, 23, 22, 4, 3, 2, 1, 1]
Sorted using sort(): [56, 56, 33, 23, 23, 22, 4, 3, 2, 1, 1]
```

In [22]:
```python
# 16.Write a Python program to print all the vowels present in the given list of st
# ["Dreamer", "infotech"].
words = ["Dreamer", "infotech"]
vowels = "aeiouAEIOU"
found_vowels = []
for word in words:
    for char in word:
        if char in vowels:
            found_vowels.append(char)
print("Vowels found:", found_vowels)
```

```
Vowels found: ['e', 'a', 'e', 'i', 'o', 'e']
```

In [2]:
```python
# 17.Write a Python program to take input from the user to create a list of element
# The user should input each element of the list one by one. Create a list with
# these elements (maximum of 5 elements).

user_list = []
max_elements = 5

print("Enter up to 5 elements:")
for i in range(max_elements):
    element = input(f"Enter element {i+1}: ")
    user_list.append(element)
print("Your list is:", user_list)
```

```
Enter up to 5 elements:
Your list is: ['1', '2', '3', '4', '5']
```

In [4]:
```python
# 18.Write a Python program to generate a list of numbers in reverse order from 10
# 1 using list comprehension.

reverse_list = [i for i in range(10, 0, -1)]
print("Reverse list from 10 to 1:", reverse_list)
```

```
Reverse list from 10 to 1: [10, 9, 8, 7, 6, 5, 4, 3, 2, 1]
```

In [6]:
```python
# 19.Create a list of square numbers from 1 to 10 using list comprehension.

squares = [i**2 for i in range(1, 11)]
print("Square numbers from 1 to 10:", squares)
```

```
Square numbers from 1 to 10: [1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
```

In [8]:
```python
# 20.Create a list of even numbers from 1 to 10 using list comprehension.

even_numbers = [i for i in range(1, 11) if i % 2 == 0]
print("Even numbers from 1 to 10:", even_numbers)
```

```
Even numbers from 1 to 10: [2, 4, 6, 8, 10]
```

In [11]:
```python
# 21.Filter strings from the list language = ['python', 'php', 'java',
# 'c++', 'javascript', 'ruby'] that contain a specific letter provided by
# the user, using list comprehension.
# Original list
```

```python
language = ['python', 'php', 'java', 'c++', 'javascript', 'ruby']

# Take a letter input from the user
letter = input("Enter a letter to filter by: ")

# Filter strings containing the letter using list comprehension
filtered = [lang for lang in language if letter in lang]

# Display the result
print("Filtered strings:", filtered)
```

Filtered strings: ['java', 'javascript']